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Review of the Research Excellence Envelope (REE)

for the

**Department of Advanced Education
and Career Development**


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Review of the Research Excellence Envelope

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Review of the Research Excellence Envelope

Objectives of the study

The objectives of the study were to provide advice to the University Research Branch of the Department of Advanced Education and Career Development (AECD) on the future of the Research Excellence Envelope (REE), with particular attention to the following:

- what the future structure of the REE should be;
- whether there should be an expansion or a narrowing of focus – particularly in light of the creation of the Intellectual Infrastructure Partnership Program (IIPP) and the Canada Foundation for Innovation (CFI);
- whether there should be changes to the guidelines for the REE;
- whether there should be any amendments to the allocation method for the REE; and
- whether there should be an adjustment to the funding level for the REE (taking into account that this can only be achieved at best through modest, incremental steps).

Methodology

In addition to reviewing sample reports on the utilization of the research excellence envelope, this study involved meetings with officials in AECD, the Alberta Science and Research Authority (ASRA), the Alberta Heritage Fund for Medical Research (AHFMR), as well as interviews with university and faculty administrators and workshops with individuals who had benefited from the Research Excellence Envelope in the University of Alberta, the University of Calgary and the University of Lethbridge. A telephone interview was also conducted with a representative of Athabasca University.

The study involved the review of information on other programs in support of research and research infrastructure, in Alberta and elsewhere in Canada. Recent documents on research and innovation policies in a number of provinces were also reviewed to see what type of action, if any, other jurisdictions were taking to strengthen research excellence.

Finally, the study involved an analysis of subsets of the university financial data compiled annually by the Canadian Association of University Business Officers (CAUBO). The author is grateful to the Association of Universities and Colleges of Canada (AUCC) for providing the data in electronic format.

Background

The Research Excellence Envelope was created following the release in 1996 of “*Fostering Excellence: A Policy Framework for Alberta’s University Research System*”.

In this framework, the Department of Advanced Education and Career Development recognized the major role played by university research in the development of the province. For the first time, the Department recognized its own role in fostering university research (which it supported indirectly through operating grants to universities) and in providing resources to ensure that research conducted in Alberta meets the highest standards of quality.

In addition to setting goals and developing performance measures for university research, the framework provided funding to help universities attract talented researchers in areas of identified strengths.

The framework followed a consultative study of the state of university research, which led to numerous recommendations in support of AECD's more direct involvement in the promotion and support of university research. This study was conducted in 1995 by Dr. Gilles Cloutier, a former President of the Alberta Research Council and past Rector of the Université de Montréal. The commissioning of this 1995 report, entitled *University Research in Alberta*, represented a new direction for AECD, which recognized that it had been relatively passive with respect to the area of university research. The Cloutier report, which presented the results of a province-wide consultation, reviewed the activities and achievements of Alberta's universities, stressing the differences and complementarity between the two comprehensive universities and the two smaller institutions. The major concern expressed by universities was that the retention and recruitment of excellent researchers was becoming a serious problem and that there was a disturbing trend towards out-migration of the best faculty from Alberta's universities.

The report became a catalyst for the adoption of the *Policy Framework* and the Research Excellence Envelope.

Summary description of the Research Excellence Envelope

The Research Excellence Envelope (terms of reference in Appendix 1) is intended to help universities attract and retain new faculty members. The envelope enables the universities to offer attractive funding packages to new recruits. It complements financial contributions from the universities and their partners towards the total cost of the recruitment of new faculty. The \$3.5 million Envelope (\$2 million in the first year) is allocated to the universities on the basis of the following formula: 50% of the allocation is based on each university's share of granting council awards and the other 50% is based on each university's share of the ratio of federal granting council grants to provincial operating grants. A three-year average is used.

Eligible expenditures must be made in relation to the research program of an identified faculty member or research team. Only faculty members hired in the previous three years are eligible, and their research must be in a priority area of the university.

Funds are used to help set up the research of these individuals, by providing or upgrading equipment, adapting laboratory or other space, and helping with other infrastructure expenditures, including travel or unusually expensive research supplies.

The terms of reference (Appendix 1) are straightforward and guidelines on the use of funds/reporting procedures (Appendices 2 and 3) are simple.

The university perspective

Discussions with faculty members and administrators in the four universities are highlighted below and summarized in appendices 4 to 7 of this report.

University administrators applaud the fact that AECD has created a university research branch because it sends a strong signal that the department recognizes the research mission of universities.

University administrators and researchers are convinced that the REE is playing a major role in helping attract excellent individuals to Alberta universities. The universities still lose some top candidates who opt for other institutions but high standards have been maintained. Positions are left vacant rather than being filled with “compromise” candidates.

The new recruits, for their part, say that the package had an influence on their choice, although the reputation of the department and the general research environment are also major factors behind selecting a university. The new researchers interviewed were of the opinion that their university offered the best or one of the best packages of all Canadian universities of a comparable size.

Faculty renewal is a strategic priority of all universities. All faculty openings are in priority areas, in the sense that vacant positions are pooled and reallocated on the basis of strategic needs. Therefore, the envelope is extremely timely, given that it is impossible to recruit top people in laboratory areas without a significant investment in equipment and other resources.

Except at Calgary, where responsibility lies with the Vice-President (Research), the Vice-President (Academic) is responsible for the Research Excellence Envelope. In all universities, the Envelope is administered as part of the budget process, not part of the internal research funding process. In the two larger universities, all or part of the REE is allocated to deans of faculties. At Lethbridge, a committee of deans advises the Vice-President.

The term of reference stating that all expenditures must be in priority areas of the university have been interpreted differently from one university to the next and within universities: in some cases, the envelope has been used as a strategic management tool to attract key individuals to the university; in others, it has been distributed among all eligible individuals. The rationale for the second approach is that faculty opening occur only in priority areas; providing recently recruited individuals with support gives them a strong signal of the university's commitment to them.

The REE is a flexible management tool to help universities attract excellent people by offering them a reasonable start-up package. The REE envelope should evolve and extend eligibility to include individuals within 5 to 7 or 8 years of appointment.

There is inconsistency in the use of funds from university to university and from faculty to faculty within a university. In some instances, the definition of infrastructure was interpreted liberally and the funds were used to enable researchers to develop their research to the point where they were ready to apply for external funding. In other cases, only equipment and renovations were allowed.

The lack of operating funds for research is a major problem: the REE is very useful, but it does not solve the problem of research underfunding. The REE is the most flexible of the envelopes, but the fact remains that the existence of separate envelopes adds an administrative burden to universities.

The research environment in Alberta universities

In the three years since the Cloutier report, the research environment in Alberta universities has changed for the better. Administrators and researchers alike are positive about the current situation and optimistic about the future. The era of drastic cuts is over, and faculties are recruiting and rebuilding.

The Research Excellence Envelope is definitely one of the factors that helped turn the atmosphere around. However, many other factors contributed to this optimism: operating grants have been stabilized, a number of envelopes are bringing in extra funding, Alberta universities are recruiting again, the federal government has recognized the acute need for research infrastructure by creating the Canada Foundation for Innovation and the Alberta Government has created the Intellectual Infrastructure Partnership Program. In the most recent federal budget, granting council funding has been restored to 1994 level, giving university researchers another positive signal. In addition, the Alberta economy is booming again, companies are hiring university graduates and new research partnerships with the private sector are being developed.

The Research Excellence Envelope was the first signal, and a very important one: it helped attract to Alberta a number of highly qualified faculty members, mainly at the assistant professor level, but, in some instances, at more senior levels. Alberta universities believe that they are now competitive with comparable Canadian universities in terms of start-up funding, although salaries are in the “low average”. Alberta universities remain well below aggressive US universities in terms of start-up funding and salaries; nevertheless, Alberta universities have been successful in recruiting excellent individuals, given that many excellent individuals prefer working in Canada for a variety of reasons, including family ties, quality of life and the flexibility of the research granting system.

It is rather early to say categorically whether this optimism will be reflected in research funding trends and whether Alberta universities will be more successful than they previously were in attracting external research support, but indicators point in the right direction. Indeed, despite the fact that there were major cuts to federal granting council programs, Alberta universities reported significant increased research funding between 1993-94 (latest year included in the Cloutier report) and 1995-96 (the latest year for which data are available) as shown in Table 1.

Table 1

Sponsored Research Revenue in Canadian Universities for Selected Provinces¹

Total (million \$)					
Year	Qc	ON	AB	BC	Can
1993-94	551	700	149	180	1787
1994-95	528	722	169	192	1817
1995-96	517	703	191	182	1791
Increase (96/94)	-6%	0%	29%	1%	0%

NSERC (million \$)					
Year	Qc	ON	AB	BC	Can
1993-94	100	145	32	54	381
1994-95	98	148	38	58	397
1995-96	95	129	34	53	357
Increase(96/ 94)	-5%	-11%	6%	-2%	-6%

Industry and not-for-profit (million \$)					
Year	Qc	ON	AB	BC	Can
1993-94	169	227	42	47	534
1994-95	150	243	46	52	542
1995-96	133	236	51	58	530
Increase(96/ 94)	-21%	4%	22%	23%	-1%

Province (million \$)					
Year	Qc	ON	AB	BC	Can
1993-94	111	116	30	17	298
1994-95	113	127	31	16	311
1995-96	117	118	35	15	312
Increase(96/ 94)	6%	2%	19%	-10%	5%

¹ Source: AUCC and CAUBO

The first section of Table 1 shows that sponsored research (which includes federal, provincial and private sources) elsewhere in Canada has been stable or decreasing over the same period. For their part, Alberta universities reported increases of \$33 million over the period, the bulk of the increase coming from sources other than granting councils.

The second part of the table shows that universities in Alberta have been doing relatively well with NSERC, despite the major cuts to that organization over the period. The third section highlights increases in funding from private sources. Finally, provincial research funding (last part of the table) reported by universities was \$35 million in 1995-96, compared to \$30 million in 1993-94².

However, these early data should be interpreted with care³. It will be important to monitor sponsored research funding data every year to see whether the increases are real or due to changes in reporting. Analysis of trends should help assess the REE's impact on the institutions' ability to attract external funding.

In Alberta universities and elsewhere in Canada, researchers and administrators recognize that recent action by both levels of government will go a long way towards restoring a badly depleted research infrastructure. In theory, this new infrastructure should increase research productivity and improve student training. However, one major problem remains: direct research funding from the federal granting councils has been cut drastically and is now just being restored to 1994 levels. There is unanimity that the next step must be increases to the federal granting council budgets to ensure that the new infrastructure is properly maintained and operated. New faculty members in Alberta have been successful in obtaining funding from the Medical Research Council and the Natural Sciences and Engineering Research Council (relatively fewer new researchers apply for grants from the Social Sciences and Humanities Research Council), but grants are small, often much smaller than the grants of recently retired senior individuals.

² Provincial figures include funding from AHFMR, departments and agencies. Funding from provincial sources peaked at \$48 million in 1988.

³ Data reported by Canadian universities to CAUBO have not been consistent from year to year in the recent past as universities (in Alberta and elsewhere) are reporting sources of funding that were not previously reported. This may lead to "apparent increases" in reported funding. For example, some universities have recently started reporting sponsored research funding awarded to teaching hospitals or affiliated institutes; others have always reported such funding and a third group is still not reporting these funds. This makes trends difficult to analyze.

Since the federal granting councils and many other agencies do not pay the indirect costs of research, these are borne by the universities, mainly through their provincial operating grants. These provincial operating grants are smaller than they used to be and faculties and departments must scramble to find the necessary resources for teaching and research. Larger provinces have indirect cost envelopes, allocated on the basis of recent federal granting council support (Ontario) or all peer-reviewed research support (Québec). These envelopes are relatively small and do not cover the whole cost of research, but they are seen as a powerful incentive for universities to bring external funds to the province. Such a scheme works best in a stable or expanding system.

Strengths of the Research Excellence Envelope

There are many indications that the Research Excellence Envelope works.

- it helps attract high quality faculty members;
- it helps them start their research program faster than would otherwise be possible;
- it helps them become successful more quickly in national grants competition;
- it gives a positive signal that the provincial government recognizes research excellence and is prepared to support it;
- early indications are that Alberta universities are successful in attracting increased research funding from non-Alberta sources;

A briefing note prepared by AECD in January 1998 highlights the reports prepared by the universities and the grantees following the first round (1996-97). These early reports show that the Research Excellence Envelope not only helps attract excellent individuals, but helps them develop their research program much faster than they would otherwise be able to do. Interviews conducted for this study confirm this.

The Research Excellence Envelope does not duplicate new infrastructure programs created in the last year or so: the federal Canada Foundation for Innovation and the Intellectual Infrastructure Partnership Program are much larger, more targeted, and more conducive to infrastructure used by groups. By virtue of their size, these programs are less flexible. Awards under the equipment portion of IIPP were relatively smaller, but not as flexible, in the sense that external matching funds are required “up-front”, which is difficult for faculty members who have not yet taken up their positions and have not yet made personal contacts with local industry.

The REE, with its requirement that most of the funding be used for infrastructure, was eligible for matching the CFI’s initial competition for New Opportunities and will be a perfect complement for the on-going mechanism for CFI New Opportunities (where the candidate need not be appointed at the time of application).

The Research Excellence Envelope's terms of reference are flexible, in the sense that the program clearly recognizes that the universities are best placed to decide on their own priorities. Staff have been helpful in interpreting guidelines on the use of funds when questions arose. The reporting procedures were found to be cumbersome in the first year but are now streamlined.

The REE emphasizes research excellence, stressing that the primary component of quality research is quality people.

The REE's weaknesses

Funds are not used consistently within universities. In some faculties, the REE is used selectively to provide significant start-up funding to new faculty members in priority areas; in others, the funding is spread thinly among all or most eligible faculty members.

This is partly due to the fact that section IV of the terms of reference (Appendix 1) is not interpreted consistently, in particular the following clause:

Expenditures must be made in areas of priority so designated by the respective university.

Since universities hire only in areas identified in their strategic plans, all new recruits are in priority areas, thus justifying providing each new faculty members with a small amount each year for three years.

In some units, researchers may use the funds for operating expenses, in others they may not. This is partly due to inconsistent interpretation of the following clause:

Eligible expenditures would include the purchase or upgrading of particular research equipment; adaptation of laboratory or other appropriate space; the purchase of specialized or enhanced computing equipment or software; particular library acquisitions or enhancements; research assistantships; travel funds for research purposes or unusually expensive research supplies.

Assistantships and travel expenses are seen as operating expenses rather than infrastructure by some university units. Therefore, not all units have allowed such expenses, authorizing only "one-shot" purchases or acquisitions. In other cases, the REE funds have been treated like operating grants, enabling researchers to start their research program before external funding is obtained.

Internal practices within the universities may also explain why the REE is not used consistently. Most start-up packages consist of funds coming from the REE and a variety of other internal and external sources. Some of these programs are quite flexible and authorize the carry-over of funds at the end of a fiscal year or the use of funds for operating expenses. Others are more restrictive. As a result, new researchers may become confused with what is permitted under what account and year-end accounting at the faculty level becomes rather complex.

The REE is not publicized enough within institutions and in each of the institutions, at least one of the grantees was unaware of the fact that the start-up package included earmarked provincial funding.

An important goal of university research is the training through research of undergraduate and graduate students and other trainees. The objective of the program should encompass both research excellence and excellence in research training. By virtue of recruiting excellent people and providing them with the tools to develop excellent research programs, Alberta universities should be well placed to attract high quality students and postdoctoral fellows.

The objectives of the REE and Establishment Grants of the Alberta Heritage Foundation for Medical Research (AHFMR) are similar: both are aimed at attracting and retaining excellent researchers by providing them with start-up support. Establishment Grants (maximum duration of two years) are designed to assist in the start-up of the laboratories and/or research projects of AHFMR scholars. There are differences between the programs: AHFMR provides salary support for these individuals and Establishment Grants involve deadlines and competitions. The REE therefore becomes a useful bridge funding until AHFMR kicks in. AECD and AHFMR may wish to discuss ways of ensuring the programs do not overlap, but are complementary to each other.

The size of the envelope and the allocation formula

Given the massive renewal of the last few years, the original \$2 million per annum envelope was too small. This was recognized early on by the government. At \$3.5 million, the envelope is reasonable, given the total number of faculty members (approximately 2800) and the number of openings each year once a steady state is reached (approximately 280 assuming a 10% turn over), and keeping in mind that the envelope is only one of the sources of start-up funding for new faculty members in priority areas.

The amount allocated to each institution is reasonable, given the mission of the institutions, their size, and their research activities. However, although the formula yields reasonable results at this time, part of it is based on share of ratios, which is rather unusual.

It is not easy to develop a fair allocation formula in a system that includes only four institutions, each with its specific characteristics and missions. Indeed, the successes or drawbacks of one institution may have a dramatic impact not only on itself, but on the others. The current formula guards against wild fluctuations by basing the allocation on the average of the three most recent years. It is clear that universities are much more careful in reporting every dollar of sponsored research funding now that the data is included in performance indicators or is used for allocation purposes.

The first part of the formula allocates 50% of the envelope in proportion to the institutional share of the funding from the federal granting councils in the previous three years. This is reasonable, assuming that granting council funding is a reasonable proxy for research excellence and research costs. One could argue that other peer reviewed programs (for example, from disease organizations or the National Health Research and Development Program,) could be included (as is the case in Québec, for example), but this would make the formula more complicated, given the need to define peer reviewed programs and collect data about them. On the positive side, the Québec formula encourages provincial (in agriculture, for example) and philanthropic organizations to use peer review and to build excellence criteria in their grants and donations.

The second part of the formula is based on each university's share of a ratio of two unrelated variables: granting council funding and provincial operating grants. The logic is difficult to understand. Operating grants are based on historical factors rather than on costs of programs, they constitute only part of the operating budgets of institutions, and may be used for both operating and capital expenditures. It is difficult to relate this to research excellence.

If the intent of the second part of the formula is to recognize that there are economies of scale in larger institutions, a simpler way to a fair allocation would be to award each university a base amount to recognize "fixed costs" and to calculate the rest on the basis of research funding: the REE = (base amount + share of granting council). The base amount could be a fixed amount per faculty member (since the REE focuses on people). Scenarios using a fixed amount per faculty member are given in Appendix 8.

Many other ways could be used to determine the base amount: it could be set arbitrarily, or based on a more complicated algorithm involving, for example, the number of forecast openings over the planning period. The number of faculty members is given here as a possibility because it is logical: the REE focuses on faculty members. It is stable: the numbers do not fluctuate much from year to year. It recognizes that there are fixed costs per faculty member.

No formula is perfect or fair, especially when applied to a set of only four institutions, and especially very different ones as is the case with Alberta universities. After a time, formulae tend to take on a life of their own and to unduly influence behaviour. Whatever formula is adopted should be modified after three to five years.

Conclusion and recommendations

The Research Excellence Envelope works:

- it helps attract high quality faculty members;
- it helps them start their research programs faster than would otherwise be possible;
- it helps them become successful more quickly in national grants competitions;
- it gives a positive signal that the provincial government recognizes research excellence and is prepared to support it;
- early indications are that Alberta universities are successful in attracting increased research funding from non-Alberta sources;
- it does not duplicate other new infrastructure programs, but is complementary to them;
- the size of the envelope appears to be adequate given the target population.

In the first three years, the focus has been on attracting new faculty members to Alberta institutions and on providing faculty members recruited in the previous three years with the tools necessary to start a successful research and training program in an Alberta university. Other jurisdictions in Canada and abroad are just starting their renewal programs, and Alberta universities may now be vulnerable to “poaching” of the excellent population of researchers built with the assistance of the REE. Indeed, aggressive recruiters like to target faculty members at the “mid-associate” professor level who have demonstrated their teaching skills, have developed a competitive research program and are enjoying a growing reputation in their field. In the future, part of the envelope could be used to help retain selected faculty members in priority areas who are “courted” by other jurisdictions.

The study notes a number of inconsistencies in the interpretation of the terms of reference (funds are spread thinly, infrastructure is not clearly defined). Minor changes to the terms of reference of the program would help make it even more effective.

Finally, part of the allocation formula is based on each university’s share of a ratio of two unrelated variables: granting council funding and provincial operating grants. It is difficult to understand the logic behind this part of the formula.

The following recommendations stem from these conclusions:

A. Recommendations to AECD

1. The REE should definitely be continued for at least three more years since it is obviously an effective way of strengthening the research capability of Alberta universities. The funding level is adequate.
2. The terms of reference should be adjusted:
 - The goal of research excellence should explicitly mention research training and training through research as this is one of the major *raison d'être* of university research; as a consequence, the report on the use of funds should ask for information on students involved in the research.
 - The terms of reference should state that the REE is a strategic management tool, i.e., the guidelines should state clearly that the funds must be used selectively to attract or retain highly qualified individuals with specific needs for research infrastructure in priority areas. This policy should be communicated clearly to universities. In turn, universities should ensure that all units are aware of the policy. Only in exceptional circumstances should a faculty or department be authorized to spread the funding amongst all or most eligible individuals. In such cases, AECD should require that the annual report provide a rationale for departing from the guidelines.

Used in such a way, the REE will be a natural complement to the CFI's ongoing "New Opportunities" program (Alberta has an initial allocation of 14 awards and Calgary 10; smaller institutions are free to use part of their CFI Research Development Fund to support the infrastructure needs of new researchers in priority areas of research).

- Now that faculty renewal is well underway, the terms of reference could be expanded so that some of the funding could be used selectively to help retain faculty members in priority areas who are "courted" by other jurisdictions. Funds could be used to provide them with specialized infrastructure and equipment that would make their research programs more competitive. Again, this should be a selective management tool, not an entitlement for all potentially eligible faculty members.
3. The second part of the allocation formula should be modified, in consultation with the institutions, to avoid basing the allocation on each university's share of a ratio.

4. Guidelines on the use of funds are sound and should be modified only slightly as it is important to preserve the flexibility of the program. Clarification is required on two points:
 - the guidelines should state clearly whether the funds can be used for operating expenses. The current guidelines are not clear in this regard, in the sense that all items listed under eligible expenditures consist of infrastructure, except travel and research assistantships. Some units have allowed research assistantships, others not, because this is an ongoing expense;
 - the guidelines should also state clearly whether grantees are allowed to carry over funding if the planned infrastructure cannot be acquired before the end of the fiscal year.
5. AECD should hold discussions with AHFMR to ensure that the REE and Establishment Grants are complementary.
6. In three years' time, AECD should ask universities to provide information on the early winners of the Research Excellence Envelope awards: are they still there? How successful are their research programs? How many students have they attracted? What are the outcomes of the research programs? Who is supporting the research? Etc.

B. Recommendations to universities:

1. Universities should ensure that the REE is more visible in the institutions and that grantees are aware that a significant part of their research support comes from the Research Excellence Envelope.
2. Universities should ensure that the REE guidelines are interpreted consistently across campus.
3. Only in exceptional circumstances should universities authorize a faculty or department to spread the funding amongst all or most eligible individuals. In such cases, the annual report should provide a rationale for departing from the guidelines.

Appendix 1—Terms of Reference of the Research Excellence Envelope

I. Goal

The Research Excellence Envelope will reward and foster sustained research excellence at Alberta universities. The program is directed only to Alberta universities as they are the only post-secondary institutions mandated and funded to conduct research as part of their formal responsibilities.

II. Principles

- The primary component of quality research is quality people (faculty/researchers).
- In order for Alberta universities to be able to recruit quality research faculty, they must be able to provide quality infrastructure support (e.g., library and computing facilities, laboratory space and equipment, and so on).
- Each university will be expected to contribute an amount equal to the overall funding it receives from the Research Excellence Envelope. Grants will be made as a portion of the total costs of any project and will cover only certain costs as specified below.

II. Strategy

The Research Excellence Envelope will provide funding to Alberta universities to assist them to recruit quality faculty through research infrastructure enhancements. Through the funding provided by the Research Excellence Envelope, universities will be able to provide additional equipment and infrastructure support for designated faculty.

III. Eligible Expenditures

The following will be used as guidelines in determining eligible expenditures:

- expenditures must be made in relation to the research program of a targeted faculty member or research team. In other words, expenditures must be incurred in relation to a particular person or team of people.
- research infrastructure enhancement expenditures can be made in relation to a targeted faculty member (researcher) within a three year period from the point of hiring.
- expenditures must be made in areas of priority so designated by the respective university.
- eligible expenditures would include the purchase or upgrading of particular research equipment; adaptation of laboratory or other appropriate space; the purchase of

specialized or enhanced computing equipment or software; particular library acquisitions or enhancements; research assistantships; travel funds for research purposes or unusually expensive research supplies.

- not eligible are: faculty salaries or any other general expenditures not tied to the infrastructure enhancement of a targeted faculty member's research program.

IV. Allocation

A two part approach to determine allocation will be used: 50 per cent of the allocation will be based on each university's share of granting council awards and the other 50 per cent will reflect the ratio of granting council grants as a percentage of operating grants. A three year average will be used.

V. Accountability and Reporting

Universities will be expected to demonstrate that funds received from this Envelope have contributed to research excellence. The universities will be expected to provide to the department specific outcome measures, in addition to the following:

- an identification of the faculty members who were targeted by research infrastructure enhancements along with a brief description of their field of study;
- an itemization of expenditures/initiatives funded, their cost and contribution made by the Research Excellence Envelope;
- an explanation of how the expenditures will contribute to research excellence;
- an indication of the level and source of internal and leveraged funds;
- a description of progress to date on the use of funds;

A report will be required at year end. In the first year of operation, the universities will be asked to advise the department no later than September 1, 1996 on their plans for the funds and their progress to date.

VI. External Review

An external review committee will be established to advise the Minister on the guidelines and operation of the Envelope after the program has been in effect for two full years. In addition, it is anticipated that the operation of the fund will be discussed by the new Research Policy Working Group.

Appendix 2—1997-98 Research Excellence Envelope Reporting Guidelines

In order to ensure consistency in reporting from each university, all elements of your report must be recorded on the “The REE Summary and Report” form, which provides space to itemize the financial and narrative components of your accountability report. If deemed essential to the accuracy or comprehensiveness of the expenditures element of the report, you may attach supplementary pages (but only in circumstances where the itemization of expenditures exceeds the space provided, in which case you may insert an asterisk to indicate the continuation of the itemization on a supplementary page).

Guidelines for filling out the REE form are as follows:

Page One. General: Record name and date of appointment, faculty, department and field of study. In the space provided, give a brief description of your appointment, field of study and related research program, as well as the initiative being funded by the REE and other funds.

Page Two. Sources of Funding and Itemization of Expenditures: List funding sources and items purchased/to be purchased with corresponding portion of funding. Record total the REE allocation and total internal/external funding (include sources).

Eligible expenditures are those made in relation to the research program of a targeted faculty member or research team—in other words, expenditures incurred in relation to a particular person or team of people. These include research infrastructure enhancement expenditures made in relation to a targeted faculty member (researcher) within a three year period from the point of hiring, as well as expenditures made in areas of priority so designated by the university.

- **Eligible expenditures are as follows:** the purchase or upgrading of particular research equipment; adaptation/establishment of laboratory or other appropriate space; the purchase of specialized or enhanced computing equipment or software; particular library acquisitions or enhancements; research assistantships and/or technical support; travel funds for research purposes or unusually expensive research supplies.
- **Not eligible are:** faculty salaries or any other general expenditures not tied to the infrastructure enhancement of a targeted faculty member’s research program.

How the Expenditures Will Contribute to Research Excellence: Use this space for a narrative description not only of how expenditures will contribute to research excellence but also of their strategic importance to the university.

Page 3. Use the first two sections to account for the progress to date on the use of the funds and to explain status of unexpended funds and/or plans to carry forward funds (also include a justification for carrying forward funds).

Use the Progress Report/Outcomes section for a narrative on how funds have helped further your research program and on how the REE funds have helped lever internal/external funding.

Use the final section for any additional comments you may want to make.

Appendix 3—Research Excellence Envelope Reporting Form (1997-98)

RESEARCH EXCELLENCE ENVELOPE AWARD—SUMMARY AND REPORT

Name:	Date of Appointment:
Faculty:	Department:
Field of Study:	
Brief Description of Researcher/Field of Study and Research Program/Initiative Funded:	

Sources of Funding and Itemization of Expenditures:

REE	Internal	External	Total	Itemization/Description

Total REE Allocation:	Internal Total:	External Total:	Grand Total:
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Sources of External Funds:

How the Expenditures Will Contribute to Research Excellence and Relationship to University's Strategic Plan:

Progress to Date on the Use of the Funds:**Explanation of Unexpended Funds or Plans to Carry Forward Funds:****Progress Report/Outcomes:****Additional Comments:**

Appendix 4—University of Alberta (summary of meetings)

Management of the Research Excellence Envelope

At the University of Alberta, the Vice-President (Academic) is responsible for the Research Excellence Envelope, since it is used exclusively for attracting new faculty members in key areas of research excellence. The research office is not involved in the REE. Faculty renewal is a strategic priority of the University. In a year's time, about a third of faculty members will have been recruited in the four previous years. The envelope is extremely timely, given that it is impossible to recruit top people in laboratory areas without a significant investment in equipment and other resources. The allocation of REE funding is made to deans of faculties as part of the annual budget process. Plans for new recruits are included in that process. The Vice-President, the deans and the departments, using endowment funds and funds from various other sources, can build packages designed to attract new faculty members. At the University of Alberta, the REE has not been used retroactively.

Impact of the REE on attracting new researchers

The new researchers interviewed were of the opinion that the University of Alberta offered the best package of all Canadian universities; however, start-up funding is well below that offered by most research intensive US universities, some of which advertise positions with start-up funding of \$250,000.

The faculty openings are in priority areas, in the sense that vacant positions are pooled and reallocated on the basis of strategic needs. Some vacated positions are not filled even if there are large numbers of students in the area: undergraduate teaching needs are not the sole driving force. In selected areas, the province provides additional funding for the expansion of programs, thus providing another useful tool to open new positions.

The University's administrators are convinced that they have been successful in attracting top quality people. The University still loses some choice candidates who opt for other institutions but high standards have been maintained. Positions are left vacant rather than being filled with "compromise" candidates. The availability of start-up funding has definitely influenced the ability of the university to attract high quality candidates. However, it is difficult for administrators to say how much of this is due to adequate start-up support and how much to other factors, such as the fact that the University is hiring when others are still cutting.

The new recruits, for their part, say that the package had an influence on their choice, although the reputation of the department and the general research environment are also major factors behind selecting a university. In any event, from their own experience, the university package was definitely the best in Canada, although both the start-up funding and the salary would have been much better in the U.S. Another attraction is that Canada's granting programs are much more flexible than those in the United States, where researchers may be moved from project to project (often outside their field of primary interest) when a department attracts large project grants.

For more mature people who joined the University to head a research centre or a department, a combination of factors motivated the move, in particular, the commitment of the faculty and the administration of the department or centre. The research atmosphere is important.

The University loses more mature people to the U.S. Administrators try to retain them, but it is difficult to stop people who are attracted elsewhere. Some move because their research requires expensive facilities that do not exist in Canada or are difficult to access from Edmonton.

The university does not advertize packages, as is done in some U.S. universities, but the availability of start-up funding comes early in the negotiations.

The REE and other research infrastructure programs

Both the REE and the IIPP are crucial. They do not overlap since the IIPP provides more general infrastructure in partnership with sponsors, whereas the REE is generally linked with one individual and is more flexible in terms of matching requirements. The IIPP terms of reference, which require external matching, make the program less attractive to new researchers because it takes time to find corporate partners when moving to a new region. Matching programs are also more cumbersome administratively and much more expensive to administer. With the IIPP and the CFI, it seems to be easier to secure major funding than small amounts for research in the social sciences and humanities. The REE is flexible and simple. It is complementary to the CFI and most of its funding is eligible as matching funding for the initial "New Opportunities" competition. The REE funding could not have been more timely in this regard. The REE is very good because it is flexible and not directly tied to external matching funding.

It is more difficult to understand whether there is overlap with the AHFMR, but the latter certainly plays a major role in increasing the number of researchers and making them competitive in MRC's and other programs. In medical research, recent decreases in operating grants (because of cuts to MRC) seem to be the major problem of researchers.

How to assess the REE's success

Success of the REE should be measured by the ability of the grantees to attract outside funding. For example, in the Faculty of Science, in the past two years, all but one grantee were funded by NSERC at their first try. In the Faculty of Medicine, a combination of the REE and Heritage funding helped recruit excellent people who are successful in attracting outside funding.

At the University of Alberta, training is not a large component of the REE. However, the REE plays a role in training by fostering research excellence. Having top-notch faculty will attract excellent students.

The REE's strengths

The REE is a flexible management tool to help universities attract excellent people by offering them a reasonable start-up package.

It is flexible and reporting requirements are minimal.

The fact that AECD has created a University Research Branch is a major step forward. Its main role should be advocacy, ensuring that the department provides adequate support for the universities to fulfil all aspects of their mission. In this regard, the issue of the indirect costs of research supported by the federal councils should be high on AECD's agenda, as these costs are a major drain on university resources.

The REE's weaknesses

The allocation formula to universities should be based on excellence only. Because it adds up indices, the second part of the allocation formula does not make much sense. If part of the formula is to be allocated on a basis other than research excellence, this should be done in a logical fashion. The formula should be simple and transparent. It should reward excellence and strength (volume and cost); stability is important. The role of smaller institutions should be recognized.

There is inconsistency among faculties in interpreting the REE guidelines. Some impose strings, others don't but simply do the required reporting at the end, while respecting the spirit of the envelope.

There were problems with reporting in the first year. This is now streamlined. Reporting requirements are simple.

Not all grantees are aware that there is a Research Excellence Envelope and that part of their initial infrastructure was provided through that envelope.

The REE's future

The REE is small, compared to operating grants, the IIPP, and other envelopes. Envelopes should be few and far between and should be rolled in base operating grants after a number of years. The REE should evolve and extend eligibility to include individuals within 5 to 7 or 8 years of appointment (mid-associate professors) as it is at this point that they become most vulnerable to external offers. The REE should continue to be a flexible block grant until rolled in operating grants in 3 to 5 years time.

Appendix 5— The University of Calgary (summary of meetings)

Management of the Research Excellence Envelope

The Research Excellence Envelope is under the responsibility of the Vice-President (Research). The envelope is part of the budget process rather than being handled as internal research funding. A portion (approximately 2/3) of the envelope is allocated to deans, using a formula based on the number of new faculty positions and research needs. The rest is distributed by the Vice-President, upon the advice of an advisory committee. Each dean submits proposals in order of priority.

The introduction of the envelope was timely as senior people are retiring and renewal is taking place in many faculties. After three years of cutbacks, the University is hiring large numbers of new faculty members. It is now at about 80% of previous complement. Since there is no internal fund for start-up, the Research Excellence Envelope is important.

The envelope was used differently from faculty to faculty, given that each of them is at a particular stage of development. One faculty had hired only one person in the last three years, others had renewed more than a third of their complement. Some have other sources of funds, others don't.

To date, in most faculties that are in the midst of renewal, a large majority of recent recruits have benefited from the envelope. In some cases (e.g. social sciences), the envelope was the sole source of start-up funding; in others (e.g. medicine), it was used to bring the start-up funding to a more reasonable level. In these two faculties, the funds were awarded to new faculty members who, for the most part, had already accepted the offer and had taken up their position. The REE has been used to recognize faculty members hired in the previous three years. In these faculties, administrators were convinced that providing recently recruited individuals with support would give them a strong signal of the university's commitment to them. Indeed, all the new faculty members were in priority areas, given that positions were opened only in areas corresponding to strategic plans.

In other faculties, larger amounts were allocated to fewer people, and the envelope was used as a recruiting tool to attract new faculty members in specific areas.

In the coming year, most faculties intend to use the REE as a recruiting tool.

There are many interdisciplinary research groups at the University and infrastructure provided through the REE is often shared across departments and faculties.

The allocation formula to universities is adequate, but larger operating grants (with accountability) would remove the need for discrete envelopes.

Impact of the REE on attracting new researchers

The start-up package offered by the University of Calgary is competitive for Canada, and the Research Excellence Envelope made the difference. After the cutbacks, no internal funds are available for this purpose.

The best candidates are doing the “job circuit” and are fully aware of the start-up funding offered by competing universities. The start-up package is one of the elements that attracted new faculty members (in disciplines where the envelope was used as a recruiting tool), but the strength and reputation of the department and its commitment to research are also strong factors. In medicine and relevant areas of science, the opportunities offered by the Alberta Heritage Fund for Medical Research were also major factors.

For individuals recruited at a more senior level, the start-up package is very important as transfer from another institution would have been impossible without adequately equipped space.

There is inconsistency in the use of funds from faculty to faculty. In some instances, the fund must be used solely for equipment, in others, there is some flexibility, with funds being used for travel or to obtain short term help. All agreed that infrastructure should remain the major focus, but more consistency and flexibility would be useful.

The REE and other research infrastructure programs or envelopes

The REE has its own niche. It is distinct from the IIPP and more flexible. The IIPP requires industrial money (or did in the first round). It is difficult for people new to the city to obtain industrial money immediately. Time is needed to build effective relationships.

The REE can be used effectively in combination with funding from the Access Fund to start new teaching and research programs.

The REE is also being used as a matching funding source for the CFI. The timing could not have been better in this regard.

It would have been very difficult to develop a good IIPP or CFI proposal without the initial start-up funding to get going.

The REE funding was included in the start-up package of almost every recruit in the Faculty of Medicine. This was deemed essential by the administration and the researchers, although a large fraction of the recruits were subsequently successful in obtaining AHFMR support. The comment was made that decisions on AHFMR funding take time, therefore, the REE is a very useful bridge. However, it is difficult to understand whether there is overlap between the REE funding and the AHFMR, because the latter certainly plays a major role in attracting researchers to Alberta, increasing the number of researchers, and making them competitive in MRC's and other programs. In medical research, recent decreases in operating grants (because of cuts to MRC) seem to be the major problem experienced by researchers.

How to assess the REE's success

Since the focus is on launching the program of an individual, the major indicators of success should be the ability to attract outside research funding, and, in the longer term, the usual indicators used to benchmark research performance.

The REE's strengths

The greatest strengths are timeliness, flexibility and simplicity. The REE was the timely solution to a serious problem.

The REE's weaknesses

Some of the weaknesses are due to internal procedures rather than to flaws in the program. Reporting in theory is very simple and does not require much from the researcher. In practice, it does, because the internal financial systems are rigid. Therefore, it is important to use the same format from year to year. It was noted that the systems are being redeveloped, therefore the problem should disappear with time.

The use of funds is inconsistent across the university, with some faculties allowing grantees to use a portion of the award for operating costs, others not.

Year-end rules were confusing in the beginning but have since been streamlined.

The REE's future

The envelope could be used more strategically as a recruiting tool now that "catch up" has been done.

The envelope should also be used to help retain key faculty members.

Appendix 6—The University of Lethbridge (summary of meetings)

Management of the Research Excellence Envelope

Research and scholarly activity are priorities of the University, and the introduction of the REE was timely, as the University is heavily engaged in faculty renewal.

The University did not use the envelope as a recruiting tool, but to help recent faculty members start their research programs. Individuals had generally accepted an offer, or, most often, had been at Lethbridge for a few months when they applied for support. The University also decided, in the first two years, to spread funds among recently recruited faculty members across disciplines. This gave a positive signal that research is important at the University. It also recognized the fact that faculty openings are in priority areas.

The envelope is under the responsibility of the Vice-President (Academic). A Committee of deans made recommendations on awards; faculty members had to apply, using a simple application form.

The definition of infrastructure was interpreted liberally and, in some disciplines, the funds were used to enable researchers to develop their research to the point where they were ready to apply for external funding.

In the third year, part of the envelope may be used as a recruiting tool. The REE grants are likely to be more focussed now than catch-up has been done.

As is the case in other universities, and in keeping with the spirit of the REE as a management tool, the REE is part of the budget process, and is handled as a management fund, not as a sponsored research fund. Some faculty members are concerned over this difference between the REE and other internal research funding, which is handled through a committee. They suggest that there should be a clear institutional policy stating whether the envelope is used as a tool for recruiting strategically or as three-year research grants for new hires. If it is the former, management should indeed handle it; if it is the latter, it should be treated as an internal research fund.

Impact of the REE on attracting new researchers

Grantees commented that the start-up package was very good for a smaller Canadian institution. Most of them knew, upon appointment, that some initial funding would be available. The availability of research funding is a factor in selecting a university, but so are the reputation of the department, the commitment of the institution to research, the opportunity to stay in Canada, etc. The motivation varies from discipline to discipline and is strongly influenced by the job market. In academic disciplines where there are few vacant positions, new faculty members are happy to find a tenure-track appointment in a Canadian university with a good reputation and a stated commitment to research.

Not all grantees are aware that there is a Research Excellence Envelope and that part of their initial infrastructure was provided through that envelope.

Administrators commented that they had been successful in attracting excellent people and had left positions vacant rather than lowering standards. They stated that the REE is important, because there are very few dollars available for research start-up.

Massive hiring will stop shortly and the envelope should soon be modified to accommodate retention. Lethbridge will lose some individuals, but this is a normal process.

Research is only one of the factors that influence career decisions.

In laboratory sciences, funds were used mainly for equipment. In other disciplines, such as music, English, addiction or nursing, part of the funding was spent on operating costs and salaries for assistants.

The lack of operating funds for research is a major problem: the REE is very useful, but it does not solve the problem of research underfunding, especially in the social sciences and humanities where funding for student assistants and travel is very low.

The REE and other research infrastructure programs or envelopes

The REE is much more flexible than the IIPP and more adapted to a small institution where few larger research groups exist (except in a small number of high priority areas).

The REE can be used effectively in combination with the Access Fund to provide start-up research funds for faculty members in new or expanding priority programs.

Funding goes in cycles. At this time, emphasis is on infrastructure. However, the largest pressure for research is operating grants and continuing funding to hire research assistants, especially in more basic disciplines. The time available for research is also a major factor.

How to assess the REE's success

Student involvement in research and ability to attract external funding should be measures of success.

At Lethbridge, student training and research are closely linked. Undergraduate students are involved in the research of faculty members and are using the research infrastructure provided through Research Excellence Envelope funding.

All researchers in NSERC areas have subsequently been successful in attracting outside funding. In other cases, it is more difficult to attract funding and it will take longer to see if new recruits are successful with external funds.

The REE's strengths

The introduction of the REE was very timely and responded to an urgent need to provide new faculty members with the funding necessary to start their research programs. The REE is definitely a factor in attracting new faculty members and in helping them attract external research funding.

The REE's weaknesses

There is inconsistency in the interpretation of the infrastructure within the university. This may also be a strength as it recognizes the differences between disciplines.

The REE does not have enough visibility, and the way funds are allocated internally needs to be communicated more clearly.

The REE is the most flexible of the envelopes, but the fact remains that the existence of separate envelopes adds an administrative burden to universities striving to keep administration small.

Flexibility and administrative simplicity are among its greatest strengths.

The REE's future

Retention will become a major factor as other universities in Canada start recruiting. Administrators and faculty members at Lethbridge suggest an extension of eligibility to faculty members who have been in place five years or more.

Appendix 7—Athabasca University

In the first year, Athabasca University allocated the Research Excellence Envelope to a new department in need of major information technology infrastructure. A Chair was attracted from another Canadian university. The REE was very helpful in developing a research program in distance education.

In the second year, the funding was distributed more widely across various disciplines to help upgrade the desktop equipment of recently recruited faculty members. The REE has had an impact in demonstrating to faculty members that the University was committed to research and that the Government of Alberta was supportive of that mission.

The institution has applied to the IIPP and is developing an application to the CFI. No overlap is seen between these programs and the REE, which is more flexible and simpler to administer.

Appendix 8—Examples of allocation scenarios

This table calculates the allocation to each institution as follows: the first part is allocated on the basis of a fixed amount per faculty member (based on 1995-96 numbers, but a three-year average could be used to guard against fluctuations). The first scenario allocates \$750 per faculty member, the second one \$500 and the third one \$1000.

The residual amount is allocated in the same manner as it is now, i.e. share of granting council funding (three year rolling average)

Scenario # 1	Alberta	Athabasca	Calgary	Lethbridge	Total
# of faculty members in 1995-96	1382	54	1185	197	2818
Initial allocation of \$750 per faculty member (000\$)	1036.5	40.5	888.75	147.75	2113.5
Granting council funding (average 94 to 96)	43,104	163	25,309	1,313	69,889
Average share of granting council funding	62%	0%	36%	2%	
Allocation of the residual	855.1	3.2	502.1	26.0	1386.5
Total allocation (000\$)	1,892	44	1,391	174	3500

Scenario # 2	Alberta	Athabasca	Calgary	Lethbridge	Total
# of faculty members in 1995-96	1382	54	1185	197	2818
Initial allocation of \$500 per faculty member (000\$)	691	27	592.5	98.5	1409
Granting council funding (average 94 to 96)	43,104	163	25,309	1,313	69,889
Average share of granting council funding	62%	0%	36%	2%	
Allocation of the residual	1,289.6	4.9	757.2	39.3	2091
Total allocation (000\$)	1,981	32	1,350	138	3500

Scenario # 3	Alberta	Athabasca	Calgary	Lethbridge	Total
# of faculty members in 1995-96	1382	54	1185	197	2818
Initial allocation of \$1000 per faculty member (000\$)	1382	54	1185	197	2818
Granting council funding (average 94 to 96)	43,104	163	25,309	1,313	69,889
Average share of granting council funding	62%	0%	36%	2%	
Allocation of the residual	420.6	1.6	247.0	12.8	682
Total allocation (000\$)	1,803	56	1,432	210	3500

